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How noticing is affected by replay of writing process during stimulated recall

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Abstract

This study investigated how stimulated recall induced peer-peer and expert-novice interactions during the replay of the participants' writing process using InputLog affected the number of enhancements made to a composition. Enhancement was operationalized as the surface and non-surface changes made either during (noticing) or after (revision) the stimulated recall session. Twenty-four high intermediate EFL students wrote different narrative essays and recorded the writing process with InputLog. Next, they participated in stimulated recall sessions while watching the replay of their writing process, three times with a peer and once with an expert. During and after these sessions, the participants revised their essays. The greatest number of enhancement was made in the expert-novice stimulated recall sessions. However, while there was a significant difference in the number of non-surface changes, no significant difference was found in the number of surface changes in these sessions.

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1. Introduction

Most scholars agree that noticing is an important aspect of both L1 and L2 development. In fact, Schmidt (2001) and Robinson (1995, 2001, 2003) argue that for input for become intake, learners must consciously notice input. This claim has been tested in second language writing, and the results advocate that helping learners notice their problems improves writing quality (see Izumi, 2002; Polio, Fleck, & Leder, 1998; Qi & Lapkin, 2001).

There are also a range of methods applied to measure the amount of noticing in different language awareness raising schemes. Traditionally, noticing was measured through think aloud protocol while writing (Hayes & Flower, 1980). More modern methods include employing key stroke logging (Lindgren, Stevenson, & Sullivan, 2008). In this method, the researcher can record all the key strokes the students have made during the composition of their texts and then replay all the recorded key strokes in real time. Thus, the students are able to observe and discuss the evolution of their writing and witness all changes made to the text during its on-line creation. The results of the key stroke logging studies suggested that replaying a writing event using key-stroke logging in real time in collaborative reflective sessions allows the learner to reflect on and evaluate his or her thoughts and actions that transpired while writing. Furthermore, these researchers advocate that through collaborative reflective sessions, learners may notice features in their writing process of which they had been previously unaware.

There is an array of software used for key stroke logging. In the present study InputLog was utilized because first, it can be used with commercial word processors (e.g. Microsoft Word, WordPad, and WordPerfect). It

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generates a data file with information on the text, including number of characters, words, pause times and pause location (pause within a word, or between words). The software can be used in parallel with another program or file. Therefore, learners would be free to use the Internet or dictionary. This is important because such activities are common while writing and should be considered as part of the writing process. Additionally, InputLog runs in the background and does not interfere with the writing process, thus, learners do not feel that they are being observed. Therefore, data gathered by InputLog enjoys more ecological validity than other key stroke logging software.

Research (Lindgren, 2004; Lindgren et al., 2008; Lindgren & Sullivan, 2003) has suggested that replay of the production process in collaboration with in-depth discussion – achieved via stimulated recall (Gass & Mackey, 2000) – of the writing event can trigger noticing and increase language awareness. There have also been suggestions that using stimulated recall may lead to more surface changes (e.g. changes of spelling, grammar, punctuation) and non-surface changes (i.e. change of content at a local and/or global level) on a text.

The main objective of the present study was to compare the number and types of enhancement made to a text written by the participants with the replay of a production process during a peer-peer stimulated recall session (henceforth SRS) and an expert-novice SRS in writing. Enhancement was operationalized as the surface and non-surface changes made either during (henceforth noticing) or after (henceforth revision) the SRS.

2. Methodology

2.1. Participants

The participants in this study were all Iranian forth-year TEFL students who were taking an advanced writing course with the researcher. Their age range fell within the 21-22 age-group. The minimum language proficiency requirement for participation was a score of 150 or higher in the Oxford Placement test (Allen, 2004) which placed the participants at level C1 on the Common European Framework. There were 24 participants in total – consisting of eight males and 16 females. The participants all had basic knowledge of MS Word and the ability to type relatively well.

2.2. Materials

The participants selected four narrative topics, after deliberation amongst themselves, when instructions on how to write a narrative essay were completed. Two topics were employed in the practice SRSs between peers, the third topic was utilized for actual data gathering in a peer-peer SRS and the last topic was used for the expert-novice SRS, where data for the study was collected. Inputlog v5.0.1.22 Beta was installed on 12 laptop computers. Moreover, a hand-out containing instructions for participation in the study, and the dates and times for the SRSs was given to participants.

2.3. Procedure

In a briefing session, all participants were informed on the aims, procedures, and requirements of the research. The principles and protocol of conducting a SRS was explained based on the framework provide by Gass and Mackey (2000). The participants were informed that the study would be conducted in two phases. In Phase One, the participants would engage in two practice SRSs with each other and receive feedback from the researcher. In Phase Two, two SRSs would be conducted for each participant; once with a peer, and once with the researcher. Data for the study was collected in the SRSs in Phase two. A separate time schedule for each of the two phases was created for the participants and given to them in the briefing session.

In Phase One, the participants were instructed to write a narrative essay in 40 minutes; this time constraint was imposed by the limitations of the class period. The writing session took place during class. The participants were instructed to use MS Word, with the auto correct function as well as all proofreading functions deactivated.

After the participants had written the essay for the first topic and had recorded the process, they were randomly paired with a peer for a practice SRS. Each participant took turns being the recaller. A modified protocol for stimulated recall proposed by Mackey, Gass, and McDonough (2000) was used to begin the session. All sessions were audio recorded. The recaller was told that he or she is going to watch the video of the writing process of the essay that he or she had just written. Further comments were made that the topic of their discussion was what the recaller was thinking at the time he or she was writing. The recaller was told that he or she was allowed to pause any time necessary. The other peer (the interlocutor), who was conducting the SRS, began the replay of the writing process. The interlocutor commentated on the replay of the text, and the recaller made remarks on what he or she was thinking at the time of writing.

The researcher listened to all the audio recorded sessions and provided feedback on the interaction between the participants. The feedback, given in a session after the first practice SRS was conducted, focused on the interlocutor's comments and questions. On many occasions, the researcher criticized the interlocutor's ability to turn attention to the recaller's on-line thinking at the time of writing, as opposed to the recaller's current thinking on writing. Moreover, the researcher disapproved of the statements the interlocutor used to lead the recaller to an answer. The interlocutor was also asked not to comment on the legitimacy of any of the modifications the recaller mentions during the simulated recall session.

All participants wrote two essays and participated in two practice SRSs. Moreover, all participants took turns becoming the interlocutor and the recaller twice.

The procedure for the peer-peer SRS in phase two was similar to that of the procedure in Phase One. All essays were written in class on the laptops which contained InputLog. The SRS was conducted immediately after the essay was complete, and it was audio recorded and later transcribed. However, in these sessions, the recaller was instructed to make revisions to his or her essay once the SRS was over. The revisions were made on the MS Word file the recaller has previously written and the process was recorded.

When all the peer-peer SRSs were completed in Phase Two, the participants took part in a SRS with the researcher. The SRS was conducted immediately after the participant had completed their essay. The procedure for the session was similar to the procedure in the peer-peer SRSs in Phase Two. The difference was that in these sessions, the researcher was the interlocutor and the participant was the recaller. The sessions were audio recorded, and later transcribed. After every session, the interlocutor asked the recaller to modify the essay on the MS Word file the recaller had written. The modification process was recorded with InputLog.

2.4. Data Analysis

The transcriptions of the audio recorded sessions as well as the video recordings of revisions made after the SRSs in Phase Two were used to study the number and types of noticing instances and revisions made by the participants. The transcriptions of the audio recording of the SRSs were used to distinguish noticing instances from revisions. Each occurrence of noticing or revision was coded by the researcher.

The categories used to classify composition changes were adopted from a study conducted by Lindgren and Sullivan (2003). Surface changes include spelling, grammar, punctuation and meaning preserving-changes. In other words, these changes do not alter the meaning of a clause, sentence, or paragraph. Non-surface changes affect the contents of the text. These changes influence the text at a local or global level. For instance, these changes could include modifying the meaning of a sentence or a paragraph, or changing the overall theme of the text

3. Results

Two Mann-Whitney Tests were conducted as the distribution of the enhancements was not normal. The first test investigated whether the number of enhancements made in the expert-novice SRS was significantly different from the amount enhancement made in the peer-peer SRS. The second test compared the number of noticing instances with the quantity of revisions. The results are displayed in Table 1.

Table 1. Results of the Mann-Whitney Test for modification comparison

	Mann-Whitney	Z	Sig
Expert-novice vs. Peer-peer	3906.5	-2.726	0.006
Noticing vs. Revision	4102	-2.233	0.02

Two Friedman tests were used to investigate whether the modifications made in the expert-novice and the peer-peer SRSs differ within groups. The outcome of the tests indicate that there was no significant difference among the four types of modifications in the expert-notice SRS ($X^2_{(3)} = 3.176$, P = 0.35). However, there was a significant difference among the four types of changes applied by the participants in the peer-peer SRS ($X^2_{(3)} = 28.227$, P = 0.000).

Next a post hoc test (Wilcoxon Signed-Rank Test) was conducted. Table 2 presents the results.

Table 2. Results of the Wilcoxon Signed-Rank Test

	Pair	Z	Sig
Noticing	Peer-peer vs. expert-novice surface changes	-6.37	0.524
	Peer-peer vs. expert-novice non- surface changes	-3.538	0.000
Revision	Peer-peer vs. expert-novice surface changes	-0.432	0.665
	Peer-peer vs. expert-novice non- surface changes	-2.548	0.011

4. Discussion and conclusion

Displays of language awareness can occur during (noticing) and after (revision) a SRS. The question of whether there is a difference in quantity between the two modes of language awareness was addressed in this study. The result of a Mann-Whitney Test indicated that there was a significant difference between the two types of enhancements, and based on the calculated data, it can be cautiously assumed that SRSs yield more revisions than noticing instances.

The first question that needs to be addressed is the necessity for a SRS with writing. The answers lies in fact that noticing is only generated during a SRS, but revisions can occur with or without a simulated recall session. Therefore, we can conclude that some of the instances of the enhancements in this study would probably not have occurred without SRSs.

More importantly, the effects of the interlocutor need to be explained. In the current study, the calculated data indicate that when the interlocutor was the researcher (expert), enhancements increased. One could argue that as the participants knew that they were going to have a SRS with the researcher, they were more vigilant during the SRS. If this was the case, then there should have been a difference in the number of noticing instances in both surface, and non-surface structures. However, according to the data in Table 2, this is clearly not the case. In fact, the data reveals that there was a significant difference in only the non-surface changes in both noticing and revision.

In order to explain this, the researcher reviewed the audio recorded sessions, and came to the conclusion that when a peer was the interlocutor, the recaller often believed that a ‘good’ essay was one without any errors. However, when the interlocutor was the researcher, the recaller imagines a ‘good’ essay as one with many revisions and restructuring. In fact, when the interlocutor was an expert, most participants felt that their enhancements were inadequate if they made little non-surface enhancements.

In conclusion, analysing and interpreting data gathered from a replay of a writing process is quite daunting. Future research using replay of the writing process would be more accurate if the data gathered is combined with the facts obtained from other methods such as retrospective interview so that we can gain a deeper understanding into the rationalizations behind the writer’s actions.

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